M&T Development, LLC

CCB# 205449

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November 7, 2016

Beaverton Planning Commission c/o City of Beaverton Planning Division Community Development Department 12725 SW Millikan Way Beaverton, OR 97076 RECEIVED

DEC 0 7 2016

City of Beaverton Planning Services

RE: Project located at 10510 SW 155th Ave., Beaverton Oregon

Dear Members of the Beaverton Planning Commission:

We, the Applicant agree with the City of Beaverton's Staff decision to approve the 3-Lot partition at $10510~\rm SW~155^{th}$ Avenue, Tax Lot $00100~\rm -15132BD$. This letter and attached exhibits argue the reasonableness of this decision. We respectfully ask that you review this information and our efforts to work with the city and neighbors to make this successful.

SETBACKS

Definition of "Setback. The minimum allowable <u>horizontal</u> distance from a given point or line of reference to a line which is parallel to the point or line of reference. The point of line of reference will be the lot line following any required dedication or a special or reservation line if one is required pursuant to this ordinance."

Since there are a number of opinions as to what meets the "legal definition" of proper setbacks for the City of Beaverton, we respectfully submit 3 different alternatives of Lot-1. No matter what definition is finally utilized, this application satisfies the setback requirements. The setbacks for the Lots -1(3 different alternatives), Lot-2 & Lot-3 is defined as follows:

Lot - 1- See Exhibit 1

Lot -1 has one(1) front lot line abutting Tract A to the West. The parallel Rear lot line abuts lot 26 on the East side of the property. With this configuration all the setbacks can be met. This includes the 15' front setback, the 20' garage and house setback, the 5' side setbacks and the 20' rear setback. Therefore setback lines and setbacks are to code.

Lot - 1 - See Exhibit 2

Lot -1 has one (1) front lot line abutting Lot 58 to the North of the property. The parallel rear lot line abuts Lot-2 to the South. With this configuration all the setbacks can be met. This includes the 15' front setback, the 20' garage and house setback, the 5' side setbacks and the 20' rear setback. Therefore setback lines and setbacks are to code.

Lot - 1 - See Exhibit 3

Lot 1 in **Initial Construction Setback Lot-1(c)** is configured using the original Front Lot Line of SW 155th Avenue that was used at the time of initial construction. This conforms to the orientation and layout of the existing house. With this configuration all the setbacks can be met. This includes the 15' front setback, the 20' garage and house setback, the 5' side setbacks and the 20' rear setback. Therefore setback lines and setbacks are to code.

Lot-2 See Exhibit 4

Lot-2 has one (1) front lot line abutting Tract A on the West side of the property and the parallel rear lot line is abutting Lot 27 on the subject property's East property line. With this configuration all the setbacks can be met. This includes the 15' front setback, the 20' garage and house setback, the 5' side setbacks and the 20' rear setback. Therefore setback lines and setbacks are to code.

Lot - 3 See Exhibit 5

Lot -3 has one (1) front lot line abutting Tract A to the Northwest and the parallel rear lot line is abutting the Vegetated Corridor to the Southeast of the property. With this configuration all the setbacks can be met. This includes the 15' front setback, the 20' garage and house setback, the 5' side setbacks, and the 20' rear setback. This lot also includes a 20' side setback to accommodate the 20' pipeline easement and a 20' side setback that accommodates the City of Beaverton Public Utility Easement. Therefore setback lines and setbacks are to code.

STORMWATER DRAINAGE SYSTEM

The storm water from the impervious surfaces (rooftops and shared driveway) on the subject property at 10510 SW 155th Ave are proposed to be directed to flow-through planters and a LIDA (Low Impact Development Approach) swale then to a stormwater pipe that runs through the 20 foot easement on the east side of the property and terminates in an stormwater outfall basin in the vegetated corridor located in the southern part of the property. These measures are intended to comply with the Oregon Drainage Law:

 Under this doctrine, adjoining landowners are entitled to have the normal course of natural drainage maintained. The lower owner must accept water that naturally comes to his land from above, but he is entitled to not have the normal drainage changed or substantially increased. **FLOW-THROUGH PLANTER** -The flow-through planters proposed for each house are "used to collect, filter, and temporarily store stormwater runoff, allowing pollutants to settle and filter out as the water percolates through the planter soil until flowing through to an approved conveyance." (CWS LIDA Handbook Appendices) A diagram of the flow-through planters are included in the plan set on page 14 entitled "Planter Details"

STORMWATER OUTFALL BASIN - The stormwater outfall basin is designed according to CWS standards under CWS standards 3.05.6 and per the CWS 'Erosion Prevention and Sediment Control Planning and Design Manual' pg 106. The diagram in this manual is also listed in the plan set on Sheet 15 - 'Erosion Control Details'.

Stormwater facilities for this project have been sized according to the sizing set forth in the Clean Water Services' "Design & Construction Standards" (CWS DC), Chapter 4 – Runoff Treatment and Control.

The flow through planters are sized for all impervious areas existing and created by the proposed lots on the subject property. The impervious area is calculated at the rate of 2640-sq.ft. of impervious surface area per dwelling unit according to CWS DC 4.05.5. Accordingly, Flow-through planters have been incorporated into the overall stormwater system design to collect and filter stormwater from the roofs of existing and proposed houses. The applicant has proposed flow-through planters that are sized 45% larger than required by the CWS sizing factor thus providing for stormwater beyond the required or average stormwater flow. (See Chart A. below) Therefore stormwater risks have been adequately addressed.

Chart A

CWS calculation requirements	Total size of Flow-through planter	
2,640 sq. ft. (impervious surface) X 0.06	158.4 sq. ft. Size Planter	
Applicant's calculations	Size of applicant's flow-through planter (45% greater area than required by CWS)	
3,833 sq.ft. X 0.06	230 sq.ft. size planter	

Additionally, a LIDA (Low Impact Development Approach) swale of approximately 500 square feet has been incorporated into the stormwater system design to receive, filter and infiltrate runoff from existing and proposed driveway. The impervious surfaces total 4,677 square feet. According to CWS DC, Table 4-2, the recommended swale would be sized at 280.62 square feet (4,677 square feet x 0.06). The Applicant proposed a 500 square foot LIDA swale exceeding the recommended square footage 78%. This provides stormwater filtration beyond the amount required by CWS. (See Chart B. below) Therefore stormwater risks have been adequately addressed.

Chart B. CWS requirements	Sq. ft. of impervious surface X 6% (0.06) 4,677sq.ft. X 0.06	Size of swale next to the driveway to retain stormwater 280.62 sq.ft swale
Calculations used by applicant	8,338 sq.ft. X 0.06	500 sq.ft. swale (78% greater than required by CWS)

TREE PRESERVATION

Where possible the Applicant desires to preserve trees where possible. Trees that remain during construction will be protected according the BDC 60.60.20. An arborist has assessed the tress in their current state, the effect of the proposed building sites and their relationship to other trees. His report is attached (Exhibit 7) and will be reviewed by the city arborist for approval.

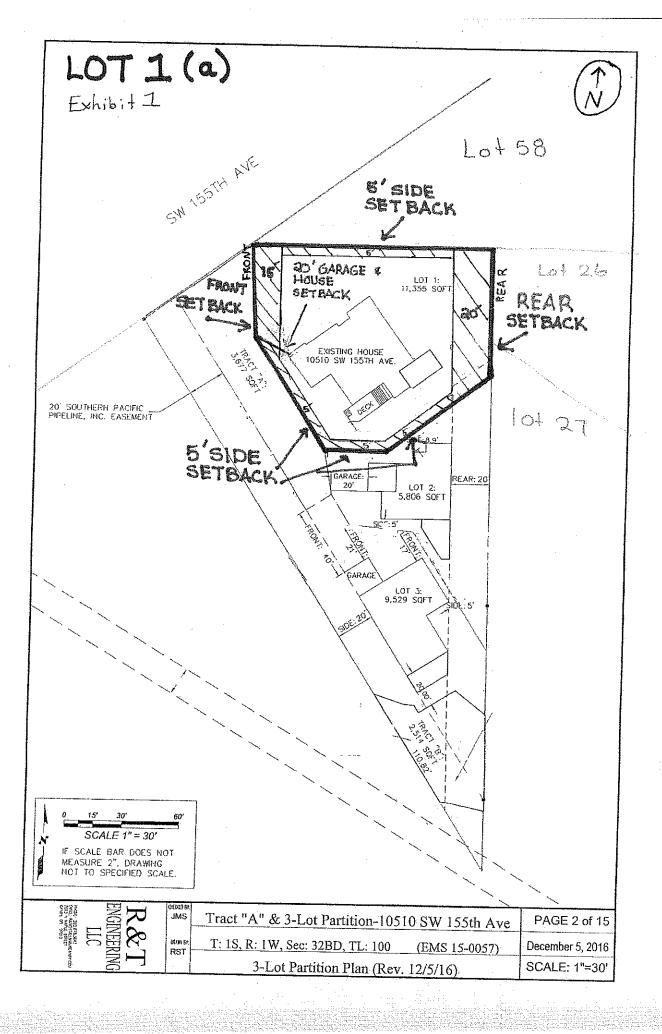
Trees in the Kinder Morgan Pipeline

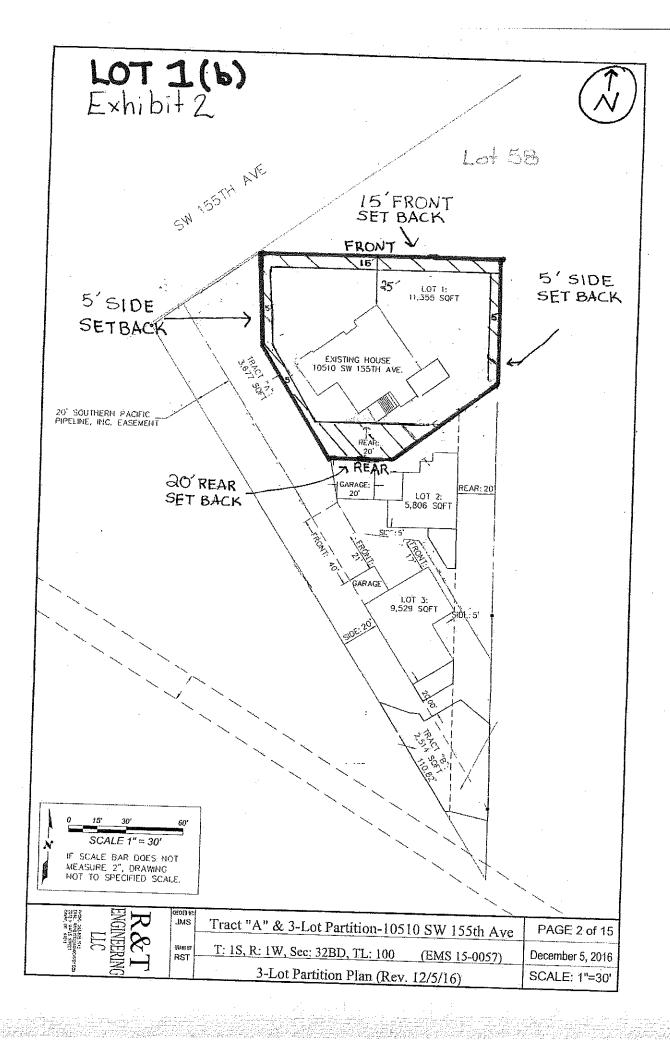
All trees in Tract A and the Kinder Morgan Pipeline will be removed for Tract A development

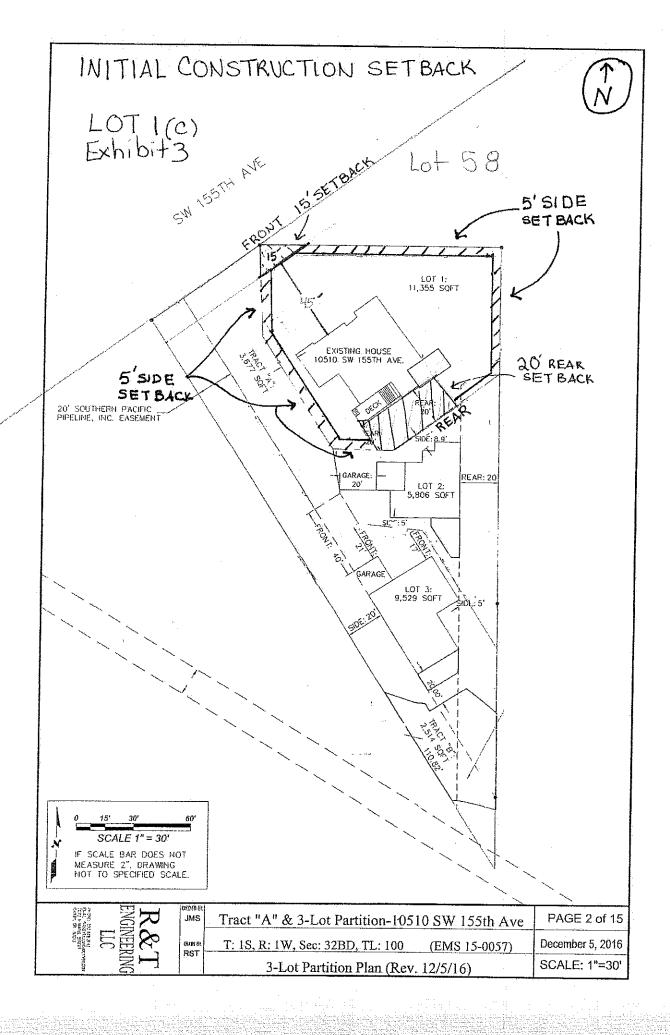
GREEN SPACE AND WILDLIFE

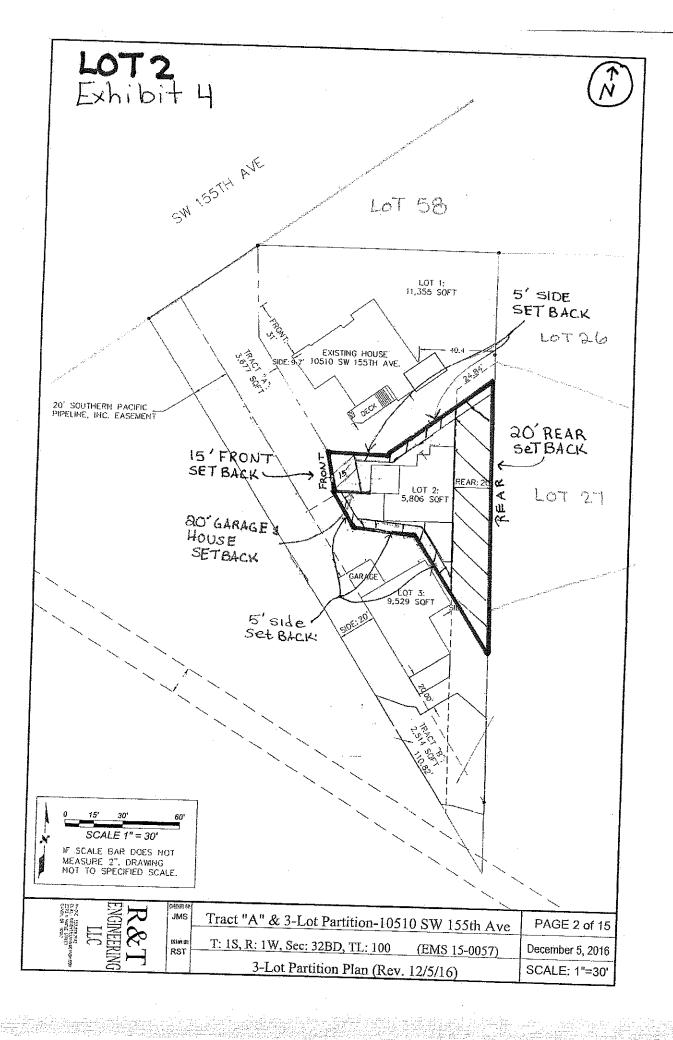
An effort has been made to preserve trees on the subject property at 10510 SW 155th Ave including hiring an arborist for a detailed report. On the subject property there are considerable areas of non-buildable space. No buildings or structures can be built in these areas; they include the 20' Pipeline Easement, the Vegetative Corridor, the Wetland area, and the proposed 20' Public Utility Easement. These are beautiful green spaces and available for additional flora and fauna.

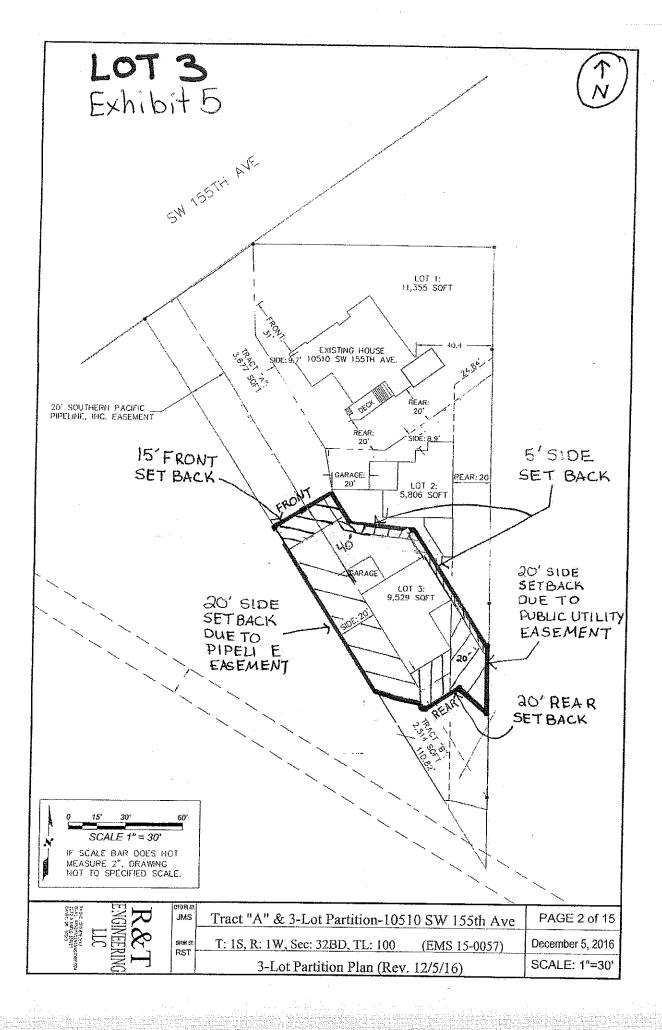
The retaining will referenced in the Driveway Detail will be under three(3) tall.













MEMORANDUM

DATE:

December 6, 2016

TO:

Tynisha Safstrom (M&T Development LLC)

FROM:

Todd Prager, RCA #597, ISA Board Certified Master Arborist

RE:

Tree Protection Recommendations at 10510 SW 155th Avenue

Summary

This report provides tree removal and protection recommendations for trees 21 through 23 and 26 through 28 at 10510 SW 155th Avenue in Beaverton.

Trees 21 and 22 are recommended for removal due to proposed construction impacts.

Trees 23 and 26 through 28 can be retained by adhering to the tree protection recommendations in this report.

If trees 26 through 28 are removed, the neighboring 24-inch trees can be retained and the neighboring 11-inch tree should be removed.

Background

M&T Development LLC is proposing to partition the property at 10510 SW 155th Avenue in Beaverton and construct two new single family homes. Several existing trees are located on the site in close proximity to construction. The tree plan in Attachment 1 includes the site plan for the development as well as the locations, species, and sizes of existing trees.

M&T Development requested that I review the plan and provide tree removal and protection recommendations for trees 21 through 23 and 26 through 28 in light of the proposed development.

On December 6, 2016, I visited the site to assess the six trees, as well as three of the neighboring trees directly east of trees 26 through 28.

The purpose of this report is to provide my tree removal and protection recommendations for trees 21 through 23 and 26 through 28, as well as the three neighboring trees.

Tree Removal and Protection Recommendations

This section of the report includes tree removal and protection recommendations for the subject trees.

Tree Removal

Trees 21 and 22 are both Douglas-firs (*Pseudotsuga menziesii*) in good condition. Tree 21 is 17-inches in trunk diameter (DBH) and tree 22 is 21-inch DBH. Both trees are less than one foot from the stormwater facility for lot 2. Based on the close proximity of construction impacts directly adjacent to their trunks, I recommend removing both trees.

Tree Protection

Trees 23, 26, 27, and 28 are all Douglas-firs in good condition. Tree 23 is a more isolated specimen while trees 26 through 28 are growing closely together in a group.

The sizes of the trees in relation to the proposed building footing are listed in Table 1 below:

Table 1: Tree Sizes and Proximities to Lot 3 Building Footing

Tree No.	Common Name	DBH	Crown Radius	Proximity to Bldg. Footing
23	Douglas-fir	.33 ^{tt}	22'	15.5'
26	Douglas-fir	20"	21'	17.5'
.27	Douglas-fir	21 ⁿ	231	26'
28	Douglas-fir	22"	19'	19.5'

The standard root protection zone in the City of Beaverton Development Code encompasses a radius around a tree of the crown radius plus five feet. As shown in Table 1, all four trees will have construction impacts within the City's standard root protection zones. However, M&T Development has indicated that the City may allow for reduced root protection zones if approved by an ISA certified arborist.

A typical reduced root protection zone encompasses a radius around a tree that is six times (6x) the tree diameter. For example, a tree with a 24-inch trunk diameter would have a minimum protection radius of 144 inches (12 feet). However, this standard may need to be adjusted on a case by case basis due to tree health, root distribution, and whether the tree will be impacted on multiple sides. In addition to the 6x root protection zone, the City of Beaverton may require an additional five foot buffer to account for items such as over excavation of footings, erosion control fencing, and construction access.

The reduced root protection zones can be met for trees 26, 27 and 28. However, there will be encroachment within the edge of the reduced root protection zone of tree 23.

All four trees can be adequately protected by adhering to the following recommendations:

- Tree Protection Fencing: Place tree protection fencing at the crown radius plus five feet wherever possible and at a five foot offset from the building footing as shown in Attachment 1. This will result in the fencing at least 6x plus five feet for trees 26, 27, and 28, but not for tree 23.
- Stump Removal: The stumps of trees 21 and 22 should be ground out rather than pulled with an excavator to protect the root system of tree 23.
- Construction Access: Access will be necessary at the side of the house within
 the crowns of the trees. In order to prevent soil compaction from construction
 foot traffic, a six inch layer of wood chips over geotextile fabric should be
 placed in the five foot buffer outside the building edge as shown in
 Attachment 1. The fabric and woods chips should be immediately removed
 after construction.
- Footing Excavation and Construction: The footing adjacent to tree 23 should be hand excavated to retain and protect roots over 2-inches in diameter. The project arborist may approve the removal of certain roots that are not critical to tree health or stability. If the project arborist determines that there are critical roots, the footing will need to be bridged over the critical roots.
- Pruning: The edges of the tree crowns may conflict with the new building edge. The crowns may need to be reduced or raised in accordance with ANSI A300 pruning standards by a qualified tree service. Pruning should be the minimum amount necessary to achieve the required clearance. No more than 20 percent of the live crown should be removed in any one growing season. Also, the upper 50 percent of the trees' total heights should be retained as live crown.

Additional tree protection recommendations are provided in Attachment 2. If adhering to the recommendations in this section and/or Attachment 2 is not feasible, additional trees may need to be removed.

Neighboring Trees

While on site, I assessed three neighboring Douglas-firs that were directly east of trees 26 through 28. Two of the trees were 24-inches in diameter and one was 11-inches. I included their approximate locations on the site plan in Attachment 1. The purpose of my assessment was to determine the likelihood of windthrow if trees 26 through 28 were removed.

The two 24-inch trees had fair trunk taper and live crown ratios¹ of approximately 90 percent. Based on these characteristics, I would categorize their likelihood of windthrow as unlikely if trees 26 through 28 were removed.

Ratio of live crown height to total tree height.

The 11-inch tree had poor trunk taper and was suppressed beneath the crowns of the adjacent trees. If trees 26 through 28 were removed, there is a much higher probability of failure based on the tree's poor structure.

Therefore, if trees 26 through 28 are removed, the neighboring 24-inch trees could be retained and the neighboring 11-inch tree should be removed. However, as described in the previous section, trees 26 through 28 can be retained with construction

Conclusion

Trees 21 and 22 are recommended for removal due to proposed construction impacts.

Trees 23 and 26 through 28 can be retained by adhering to the tree protection recommendations in this report.

If trees 26 through 28 are removed, the neighboring 24-inch trees can be retained and the neighboring 11-inch tree should be removed.

Please contact me if you have questions, concerns, or need any additional information.

Sincerely,

Todd Prager

ASCA Registered Consulting Arborist #597

ISA Board Certified Master Arborist, WE-6723B

ISA Qualified Tree Risk Assessor

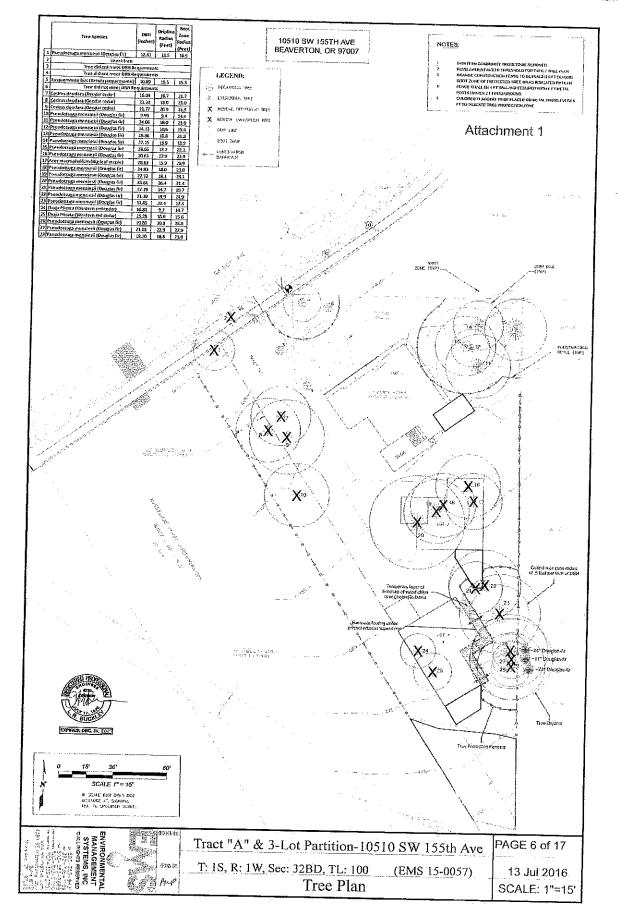
Todd Prager

AICP, American Planning Association

Attachment 1 - Site Plan with Trees and Tree Protection

Attachment 2 – Additional Tree Protection Recommendations

Attachment 3 – Assumptions and Limiting Conditions



Attachment 2 Additional Tree Protection Recommendations

Before Construction Begins

- 1. Notify all contractors of tree protection procedures. For successful tree protection on a construction site, all contractors must know and understand the goals of tree protection.
 - a. Hold a tree protection meeting with all contractors to explain the goals of tree protection.
 - c. Have all contractors sign memoranda of understanding regarding the goals of tree protection. The memoranda should include a penalty for violating the tree protection plan. The penalty should equal the resulting fines issued by the local jurisdiction plus the appraised value of the tree(s) within the violated tree protection zone per the current Trunk Formula Method as outline in the current edition of the *Guide for Plant Appraisal* by the Council of Tree & Landscape Appraisers. The penalty should be paid to the owner of the property.

2. Fencing

- a. Trees to remain on site will be protected by installation of tree protection fencing at the edge of the protected root zone, which is defined by the City of Beaverton as the tree dripline plus 5-feet. Alternatively, tree protection fencing may be set as shown in Attachment 1.
- b. Fencing and protected root zones are required to be shown on the site plan for a Tree Plan Two application.
- c. The fencing should be put in place before the ground is cleared in order to protect the trees and the soil around the trees from disturbances.
- d. Fencing should be established by the project arborist based on the needs of the trees to be protected and to facilitate construction.
- e. Fencing should consist of 6-foot high steel fencing on concrete blocks or 6-foot metal fencing secured to the ground with 8-foot metal posts to prevent it from being moved by contractors, sagging, or falling down.
- f. Fencing should remain in the position that is established by the project arborist and not be moved without approval from the project arborist until final project approval.

3. Signage

a. All tree protection fencing should have signage as follows so that all contractors understand the purpose of the fencing:

TREE PROTECTION ZONE

DO NOT REMOVE OR ADJUST THE APPROVED LOCATION OF THIS TREE PROTECTION FENCING.

Please contact the project arborist if alterations to the approved location of the tree protection fencing are necessary.

Todd Prager, Project Arborist - 971-295-4835

- b. Signage should be placed every 75-feet or less.
- c. Colored tree flagging indicating that this area is a tree protection zone is to be placed every five (5) linear feet on the fence to alert construction crews of the sensitive nature of the area.

During Construction

- 1. Protection Guidelines Within the Tree Protection Zones:
 - a. No new buildings; grade change or cut and fill, during or after construction; new impervious surfaces; or utility or drainage field placement should be allowed within the tree protection zones.
 - b. No traffic should be allowed within the tree protection zones. This includes but is not limited to vehicle, heavy equipment, or even repeated foot traffic.
 - c. No storage of materials including but not limiting to soil, construction material, or waste from the site should be permitted within the tree protection zones. Waste includes but is not limited to concrete wash out, gasoline, diesel, paint, cleaner, thinners, etc.
 - d. Construction trailers should not to be parked/placed within the tree protection zones.
 - e. No vehicles should be allowed to park within the tree protection zones.
 - f. No other activities should be allowed that will cause soil compaction within the tree protection zones.
- The trees should be protected from any cutting, skinning or breaking of branches, trunks or woody roots.
- 3. The project arborist should be notified prior to the cutting of woody roots from trees that are to be retained to evaluate and oversee the proper cutting of roots with sharp cutting tools. Cut roots should be immediately covered with soil or mulch to prevent them from drying out.
- Trees that have roots cut should be provided supplemental water during the summer months.
- Any necessary passage of utilities through the tree protection zones should be by means
 of tunneling under woody roots by hand digging or boring with oversight by the project
 arborist.
- 6. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

After Construction

- Carefully landscape the areas within the tree protection zones. Do not allow trenching for irrigation or other utilities within the tree protection zones.
- Carefully plant new plants within the tree protection zones. Avoid cutting the woody roots of trees that are retained.
- Do not install permanent irrigation within the tree protection zones unless it is drip
 irrigation to support a specific planting or the irrigation is approved by the project
 arborist.
- 4. Provide adequate drainage within the tree protection zones and do not alter soil hydrology significantly from existing conditions for the trees to be retained.
- 5. Pruning of retained trees should be one of the last steps of the landscaping process before the final placement of trees, shrubs, ground covers, mulch, or turf.
- 6. Provide for the ongoing inspection and treatment of insect and disease populations that are capable of damaging the retained trees and plants.
- 7. The retained trees may need to be fertilized if recommended by the project arborist.
- Any deviation from the recommendations in this section should receive prior approval from the project arborist.

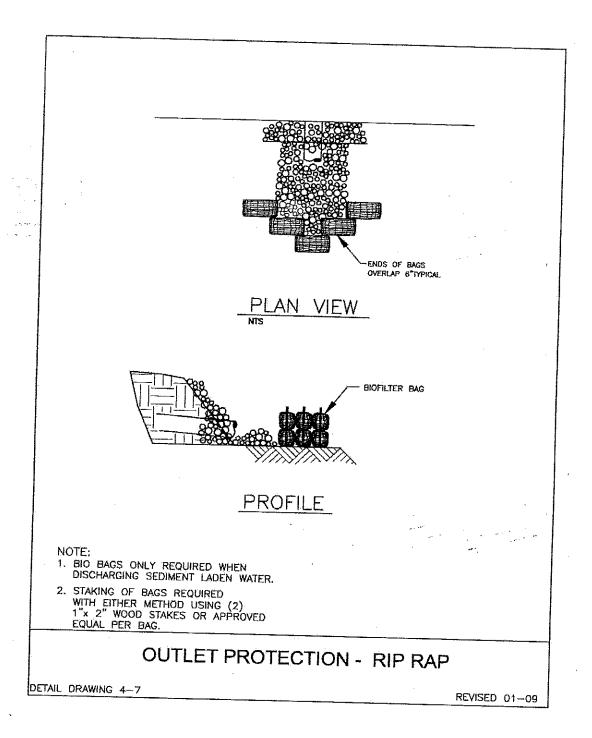
Attachment 3 Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. The site plans and construction information provided by M&T Development LLC was the bases of the information provided in this report.

2. It is assumed that this property is not in violation of any codes, statutes, ordinances, or other governmental regulations.

- 3. The consultant is not responsible for information gathered from others involved in various activities pertaining to this project. Care has been taken to obtain information from reliable sources.
- 4. Loss or alteration of any part of this delivered report invalidates the entire report.
- 5. Drawings and information contained in this report may not be to scale and are intended to be used as display points of reference only.
- 6. The consultant's role is only to make recommendations. Inaction on the part of those receiving the report is not the responsibility of the consultant.
- 7. The purpose of this report is to provide my tree removal and protection recommendations for trees 21 through 23 and 26 through 28, as well as the three neighboring trees.

CHAPTER 4: EROSION AND SEDIMENT CONTROL MEASURES AND BMP'S



Note: After construction is completed, all bio bags are to be removed. Riprap will be call $100\,\mathrm{riprap}$.